23. COLONY-FISSION IN THE ANT, *MONOMORIUM GRACILLIMUM* SMITH (HYMENOPTERA: FORMICIDAE)

Reproduction of colonies by fission is known to take place in pleometrotic ants in which old colonies grow and may break up into new daughter ones (Brian 1965). Details of this process in a few species of ants have been recorded by workers (Elton 1932; Ledoux 1950; Gosswald 1951; Duncan-Weatherly 1953; Vanderplank 1960; Soulie 1962). The authors happened to make the following observations on the fission of colony in the ant *Monomorium gracillimum* Smith in the verandah of a building in the Malabar Christian College compound at about 18 hrs. on June 30, 1969. At that time, the sky was cloudy and there was a break in the first rains of the season. The temperature was 27·5°C and the relative humidity was 92%. It is to be noted that the initial part of the observations could be interpreted only after it was definitely known that the colony of the ant was undergoing fission.

The workers of *M. gracillimum* were first seen leaving their nest and coming out in fairly large numbers through the opening of the nest on the cemented floor, and going to a point about seven metres away where they had found another opening at the base of a wall, presumably leading to a suitable nesting site. The workers moved back and forth between the old nest and the new site, probably laying the trail for others to follow. During the course of about one hour, large numbers of workers emigrated and entered the new nesting site and then a queen emerged out of the opening of the parent nest and started moving slowly along the trail, with the workers. The queen was in the dealated stage and must have been fertilized. It could hardly walk and was virtually being dragged by its legs and antennae, by the workers towards the new nest-site. No immature stages were being carried by the emigrating workers. The queen finally reached the new nest into which it entered. The emigration of workers continued till about 20 hrs. though their number gradually decreased. All the workers which came out of the parent colony did not necessarily move into the new nest, as some of them returned to the old nest after moving along the trail for some distance. A few workers even appeared to be moving from the new colony-site towards the old nest. For some time there was a certain degree of intermixing of workers of the two colonies along the trail but on the following morning, no ants were found moving along the old trail between the two nests and the two colonies had apparently become well separated and

established. As the forms involved in this process are apterous, the extent of dispersal of daughter colonies arising from such fissions of the old colony, is obviously limited.

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24. PROXIMITY OF THE COLONIES OF THE TENDING ANT SPECIES AS A FACTOR DETERMINING THE OCCURRENCE OF APHIDS

Aphis craccivora Koch. is a common aphid and is found periodically infesting the tender newly sprouted shoots of the plant, *Glyricidia maculata* in Calicut, soon after the first rains. The area of observation reported below is a square compound on the Malabar Christian College campus and it is fringed on all sides with *G. maculata*. In this area, at present, the aphids are actively tended almost exclusively by the ant, *Anoplolepis longipes* Jerdon which nests in bare soil. It is known that in this kind of beneficial association or mutualism, the ants obtain honeydew from the aphids while the aphids are protected to some extent from their enemies by their attendant ants.

It was noted with interest that while the plants on two continuous sides of the compound were heavily infested with aphids, those on the other two sides were virtually free from them. This part of the compound was flooded with stagnant water during the rainy season making it impossible for *A. longipes* to nest in the soil. The plants along these two sides were not infested with aphids. In the remaining part of the compound where there is better drainage, the soil was more favourable to the ant and about fifteen nests were counted in the area.